

REMARKS

New claims 71-79 are added. Support for the new claims is provided by exemplary embodiments of the invention disclosed by the originally-filed application at, for example, pages 8-10 and Figs. 4-5.

Claims 40-47 and 51-55 are allowed.

Claims 58, 62, 63, 68, 69, and 70 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

New independent claim 71 is such rewritten allowable claim 58, and therefore, new claim 71 is in allowable form.

Claims 48, 50, 56, 57, 59-61, and 64-67 are rejected under 35 U.S.C. §102(e) as being anticipated by Jeng, et al. (U.S. Patent No. 5,994,228). Claim 49 is rejected under 35 U.S.C. §103(a) as being unpatentable over Jeng, et al. in view of Dennison (U.S. Patent No. 5,637,525).

Regarding the anticipation rejection against independent claim 48 based on Jeng, claim 48 is amended to recite, in a common masking step and a common etching step, etching a doping window opening over a substrate active area adjacent the conductive line and removing at least some of the encapsulation material over the conductive line and removing some of the silicon nitride material over the conductive portion of the conductive line to form a contact opening to the conductive line. That is, in the *common* etching step, the encapsulation material and the silicon nitride material are removed. The amendment language is supported by exemplary embodiments of the invention described in the originally-filed application at, for example, page 8 and Fig. 5.

However, Jeng teaches, in one etching step, to remove BPSG 132 and SOG 133

(col. 6, Ins. 1-24; Fig. 3d) (for which the Examiner relies to allegedly teach the recited encapsulation material). In another *separate and discrete* etch step, Jeng teaches to remove SiN 121 and WSi 119, without removing the encapsulation material (which would be the BPSG 132 and SOG 133 relied upon by the Examiner) (col. 6, Ins. 25-38; Fig. 3e). Accordingly, Jeng fails to teach removing encapsulation material and silicon nitride material in a **common etching step**. Therefore, it is inconceivable that Jeng teaches or suggests in a **common etching step** ... removing at least some of the encapsulation material over the conductive line and removing some of the silicon nitride material as positively recited in claim 48. Claim 48 is allowable.

Claims 49, 56-61, 64-67 and 72-76 depend from allowable independent claim 48, and therefore, dependent claims 49, 56-61, 64-67 and 72-76 are allowable.

For example, dependent claim 49 recites gas diffusion doping through the doping window opening into the substrate active area with a p-type impurity and is rejected by the combination of Jeng and Dennison. The Examiner correctly states Jeng fails to teach this limitation and relies on Dennison to allegedly teach the limitation pointing to col. 4, In. 65-col. 5, In. 18 of Jeng (pg. 5 of paper no. 20060621). However, Dennison teaches an n-type dopant (col. 5, Ins. 2-3) and **not a p-type impurity** as positively recited by claim 49. The Examiner is respectfully reminded that to establish prima facie obviousness of a claimed invention, all of the claimed limitations must be taught or suggested by the prior art. MPEP §2143.03 (8th ed., rev. no. 3, vol. 2) *citing In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added). Having failed to demonstrate a teaching to all of the claimed limitations of claim 49 as clearly mandated by the Federal Circuit Court, claim 49 is allowable.

Moreover, the Examiner is respectfully reminded that to modify a primary reference,

the Federal Circuit Court has stated that the Examiner must present a motivational rationale based on "objective evidence and [the] making [of] specific factual findings with respect to the motivation" to modify primary reference devices. MPEP §2143.01 I. (8th ed., rev. 3, vol. 2) *citing In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ 2d 1430, 1433-34 (Fed. Cir. 2002) (emphasis added). The Examiner provides a motivational rationale to combine the references which is stated for the purpose of enhancing the impurity concentration in the substrate, and then the Examiner refers to columns 4 and 5 of Dennison. However, columns 4 and 5 of Dennison **do not** teach that gas diffusion doping through the doping window opening into the substrate active area with a p-type impurity will enhance impurity concentration. There is no teaching to gas diffusion doping benefiting or enhancing the impurity concentration. Accordingly, the Examiner has failed to present a motivational rationale based on "objective evidence" and has only provided his own opinion, that is, **subjective** evidence, and subjective evidence is the opposite of objective evidence. Since the Examiner has failed to provide objective evidence of a motivational rationale as clearly mandated by the Federal Circuit Court, claim 49 is allowable.

Regarding dependent claim 56 which is rejected as being anticipated by Jeng, Claim 56 recites wherein the etching of the doping window opening comprises **forming a pair of doping window openings adjacent opposite sides of the conductive line**. The Examiner alleges Figs. 3a-3f of Jeng teach this limitation where periphery circuitry 120 has one opening directly over a word line and a second opening adjacent the word line (Fig. 3d). The one opening over the word line is not adjacent an opposite side of the word line. Cell area 110 of Jeng illustrates another opening, but this opening is adjacent the same side of the word line as the second opening, that is, not on the opposite side of the word

line. Accordingly, it is inconceivable that Jeng teaches a **pair of doping window openings adjacent opposite sides of the conductive line** as recited. Claim 56 is allowable.


Independent claim 50 is amended for clarification, and as amended, recites **encapsulation material forming sidewall spacers** adjacent the conductive word line. The Examiner relies on BPSG 132 and SOG 133 to allegedly teach the recited encapsulation material (pg. 3 of paper no. 20060621). However, Jeng teaches BPSG 132 and SOG 133 are **elevationally above** word line structures, not adjacent the conductive word line. Accordingly, it is inconceivable that the encapsulation material of Jeng teaches or suggests **encapsulation material forming sidewall spacers adjacent** the conductive word line as recited by claim 50. In fact, Jeng teaches sidewall spacers of word lines referenced by number **123 indicating material which is not the encapsulation material** BPSG 132 and SOG 133 for which the Examiner relies (Figs. 3a-3b). Claim 50 is allowable.

Claims 62-63 and 68-70 depend from allowable independent claim 50, and therefore, dependent claims 62-63 and 68-70 are allowable.

This application is now believed to be in immediate condition for allowance and action to that end is respectfully requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the undersigned respectfully requests a telephone interview prior to issuance of any such subsequent action.

Respectfully submitted,

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